REMARKS

Reconsideration of the application is respectfully requested in view of the foregoing amendments and following remarks:

Amendment to the Claims

In the Official Action, the Examiner has objected to and rejected Claims 1 through 50. In response thereto, Claims 1 through 50 are canceled, and thus, the Claims are not amended. Claims 51 through 63 are added in order to present the claims in a better and proper form and are supported by the specification and figures. The Figures and specification as originally filed support all of the added Claims. It is respectfully submitted that these changes are clearly supported by the description of the application, and therefore do not constitute new matter. Therefore, it is believed that added Claims 51 through 63 are in immediate condition for allowance.

Rejection of Claims 1-50 Under 35 U.S.C. §103(a)

Claims 1-50 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Muller (U.S. Patent, No. 6, 207, 517) in view of An (U.S. Patent, No. 6, 245, 618), Wang (U.S. Patent, No. 6, 207, 576) and Wu (U.S. Patent, No. 6, 127, 247). According to the Official Action, the cited Muller reference is primarily relied on to reject Claims 1-50 because Muller teaches a method for forming the dual damascene structure.

This rejection is respectfully traversed on the basis that there is no teaching, suggestion, or incentive supporting the citation, predominantly because the applied references disclose a method for forming a dual damascene different from the present claimed invention. The method for forming the dense region, or implanting process, or the opening of the dual damascene formed by ion-implantation with two times are not the features of the present claimed invention. The features of the present invention disclose formation of a dense region with lower etching rate in the dielectric

layer in order to protect the dielectric layer under the dense region from the etching process, so as to form an opening of the dual damascene after etching the vertical that is not dense. This is not shown in the applied references.

In Muller, various ion-implantations and depths are used to form a dual implanting region, as shown in FIG.1b, and then an etching process is performed to remove the region with a high etching rate that is implanted to form a dual damascene, as shown in FIG.1C. On the contrary, the present claimed invention utilizes ion-implantation to form a dense region with a lower etching rate to generate a greater etched selectivity between implanting and un-implanting regions in the dielectric layer, so as to remove the un-implanting region with low etching rate until the implanting region is depleted during the etching process. That is, the implanting region of the present claimed invention is an etched stop layer or an etched buffer layer, whereby an opening of the dual damascene is formed. Obviously, the dual damascene structure with a dense region and a non-dense region in the present claimed invention is different from the dual damascene structure with two implanted region taught by the applied references. Specifically, these citations in the applied references do not disclose that the opening of the dual damascene is formed by the buffer layer of the ion-dense region.

According to the cited references and figures thereof, the purpose disclosed in the present claimed invention is not achieved or accomplished by combining the processes of the cited references with each other. The suggested combination of references would require a substantial reconstruction and redesign of the elements shown in the primary reference as well as a change in the basic principle under which the primary reference construction was designed to operate. Hence, the difference between the cited references and the present claimed invention is non-obvious. So, the applied references do not disclose or suggest the purpose and features of the present claimed invention. In view of the foregoing, the features of the present invention are patentably distinguishable from the cited references. It is respectfully submitted that one of ordinary skill in the art could only have used hindsight to make the proposed modification. A rejection, which

ignores the purpose of the prior art in the manner that an ordinary artisan would have perceived them, is not proper, as explained in MPEP 2143.01. Furthermore, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), 469 U.S. 851(1984).

Therefore, for these reasons and the reasons discussed above, applicant respectfully submits that the Claims of the present invention are patentably distinguished over all cited references. Withdrawal of this rejection under 35 U.S.C. §103(a) and 35 U.S.C. §112 is respectfully requested, and allowance of the Claims is earnestly solicited.

Conclusion

In light of the above amendments and remarks, applicants respectfully submit that all pending claims as currently presented are in condition for allowance and hereby respectfully request reconsideration. Applicant respectfully requests the Examiner to pass the case to issue at the earliest convenience. Having thus overcome each of the rejections made in this Office Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,
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